



SEQUENCE LISTING

TECH CENTER 1600/2900

OCT 10 2001

RECEIVED

<10> Fowlkes, Dana M.
Broach, Jim
Manfredi, John
Klein, Christine
Murphy, Andrew J.
Paul, Jeremy
Trueheart, Joshua

<120> YEAST CELLS ENGINEERED TO PRODUCE PHEROMONE SYSTEM
PROTEIN SURROGATES, AND USES THEREFOR

<130> CPI-012CP4BCN

<140> 09/286,166

<141> 1999-04-05

<150> 08/322,137

<151> 1994-10-13

<150> 08/309,313

<151> 1994-09-20

<150> 08/190,328

<151> 1994-01-31

<150> 08/041,431

<151> 1993-03-31

<160> 133

<170> PatentIn Ver. 2.0

<210> 1

<211> 89

<212> PRT

<213> Saccharomyces cerevisiae

<400> 1

Met Arg Phe Pro Ser Ile Phe Thr Ala Val Leu Phe Ala Ala Ser Ser
1 5 10 15

Ala Leu Ala Ala Pro Val Asn Thr Thr Thr Glu Asp Glu Thr Ala Gln
20 25 30

Ile Pro Ala Glu Ala Val Ile Gly Tyr Leu Asp Leu Glu Gly Asp Phe
35 40 45

Asp Val Ala Val Leu Pro Phe Ser Asn Ser Thr Asn Asn Gly Leu Leu
50 55 60

Phe Ile Asn Thr Thr Ile Ala Ser Ile Ala Ala Lys Glu Glu Gly Val
65 70 75 80

Ser Leu Asp Lys Arg Glu Ala Glu Ala
85

<210> 2

<211> 76

<212> PRT

<213> Saccharomyces cerevisiae

<400> 2

Trp His Trp Leu Gln Leu Lys Pro Gly Gln Pro Met Tyr Lys Arg Glu
1 5 10 15

Ala Glu Ala Glu Ala Trp His Trp Leu Gln Leu Lys Pro Gly Gln Pro
20 25 30

Met Tyr Lys Arg Glu Ala Asp Ala Glu Ala Trp His Trp Leu Gln Leu
35 40 45

Lys Pro Gly Gln Pro Met Tyr Lys Arg Glu Ala Asp Ala Glu Ala Trp
50 55 60

His Trp Leu Gln Leu Lys Pro Gly Gln Pro Met Tyr
65 70 75

<210> 3

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 3

aagcttaaaa gaatg

15

<210> 4

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<222> (1) . . (24)

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 4

aaa gaa gaa ggg gta tct ttg ctt aagctcgaga tct
Lys Glu Glu Gly Val Ser Leu Leu
1 5

37

<210> 5

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

```

<400> 8
Met  Gln  Pro  Ser  Thr  Ala  Thr  Ala  Ala  Pro  Lys  Glu  Lys  Thr  Ser  Ser
  1          5          10          15

Glu  Lys  Lys  Asp  Asn  Tyr  Ile  Ile  Lys  Gly  Val  Phe  Trp  Asp  Pro  Ala
          20          25          30

Cys  Val  Ile  Ala
          35

```

19

36

```
<220>
<223> Description of Artificial Sequence: Synthetic
sequence
```

<400> 12
ggtactcgag tgaaaagaag gacaacnnkn nknnknnknn knnknnknnk nnknnknnkt 60
gtggtattgc ttaagtacg 79

<210> 13
<211> 22
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> (8)..(18)
<223> Any occurrences of Xaa may be any amino acid

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 13
Ser Ser Glu Lys Lys Asp Asn Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10 15
Xaa Xaa Cys Val Ile Ala
20

E!
int.
<210> 14
<211> 34.
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 14
gttaagaacc atatactagt atcaaaaatg tctg 34

<210> 15
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 15
tgatcaaaat ttactagttt gaaaaagtaa tttcg 35

<210> 16
<211> 28
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 16

ggcaaaatac tagtaaaatt ttcattgtc

28

<210> 17

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 17

ggcccttaac acactagtgt cgcattatat ttac

34

<210> 18

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 18

ctaaagaaga aggggtatct ttgcttaagc tgcagatctc gactgataac aacagtgtag 60

<210> 19

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 19

catacacaat ataaagcttt aaaagaatga g

31

<210> 20

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 20

gctacttaag cgtgaggcag aagct

25

<210> 21

<211> 10

E'
wnt.

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 21
cggatgatca 10

<210> 22
<211> 41
<212> DNA
<213> Artificial Sequence.

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 22
ccaaaataag tacaaagctt tcgaatagaa atgcaaccat c 41

<210> 23
<211> 59
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 23
gccgctccaa aagaaaagac ctcgagctcg cttaagttct gcgtacaaaa acgttggtc 59

<210> 24
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 24
ggtactcgag tgaaaagaag gacaac 26

<210> 25
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 25
cgtacttaag caataacaca 20

<210> 26
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 26
cgtgaagctt aagcgtgagg cagaagct

28

<210> 27
<211> 57
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> (12)..(49)
<223> Any occurrences of n may be any nucleotide

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 27
cggatgatca mnnmnnmnnm nnnmnnmnnm nnnmnnmnnm mnnmnnmna gcttctg

57

<210> 28
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 28
ggtactcgag tgaaaagaag gacaac

26

<210> 29
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> (22)..(53)
<223> Any occurrences of n may be any nucleotide

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 29

E!
cont.

cg tactttaag caataacaca mnnnnnnnnnnm nnnnnnnnnnnm nnnnnnnnnnnm mnnngttgtcc 60

<210> 30

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
sequence

<400> 30

gggaagctta tgccgagatc gtgctgccag ccgc

34

<210> 31

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
sequence

<400> 31

ggggaagact tctgccctgc gccgctgctg cc

32

<210> 32

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
sequence

<400> 32

ggggaagacc cgcaggaggc agaagcttgg ttgcag

36

<210> 33

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
sequence

<400> 33

gggagatctt cagtacattg gttggcc

27

<210> 34

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<210> 35

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
sequence

<400> 34

Arg Asn Ser Ser Ser Ser Gly Ser Ser Gly Ala Gly Gln Lys Arg Glu
1 5 10 15

Ala Glu Ala Trp His Trp Leu Gln Leu Lys Pro Gly Gln Pro Met Tyr
20 25 30

<210> 35

<211> 29

<212> DNA

<213> Homo sapiens

<400> 35

ccgcgtctca catgcccaag aagaagccg

29

<210> 36

<211> 24

<212> DNA

<213> Homo sapiens

<400> 36

ccgtctagat gctggcagcg tggg

24

<210> 37

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
sequence

<400> 37

ttaagcgtga ggcagaagct tatcgata

28

<210> 38

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
sequence

<400> 38

cgactccgt cttcgaatag ctatctag

28

<210> 39

<211> 71

<212> DNA

E!
mt.

<213> Artificial Sequence

<220>

<221> misc_feature

<222> (19)..(53)

<223> Any occurrences of n may be any nucleotide

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 39

ctggatgcga agacagctnn knnknnknnk nnknnknnkn nknnknnknn knnktgatca 60

gtctgtgacg c

71

<210> 40

<211> 17

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 40

gcgtcacaga ctgatca

17

<210> 41

<211> 56

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 41

gccgtcagta aagcttggca ttggttgacg cctatgtact gatcagtctg tgacgc 56

<210> 42

<211> 39

<212> DNA

<213> Saccharomyces cerevisiae

<220>

<221> CDS

<222> (1)..(39)

<400> 42

tgg cat tgg ttg cag cta aaa cct ggc caa cca atg tac

39

Trp His Trp Leu Gln Leu Lys Pro Gly Gln Pro Met Tyr

1

5

10

<210> 43

<211> 13

<212> PRT

E1
ent

<213> Saccharomyces cerevisiae

<400> 43

Trp His Trp Leu Gln Leu Lys Pro Gly Gln Pro Met Tyr
1 5 10

<210> 44

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
sequence

<400> 44

ctggatgcga agactcagct

20

<210> 45

<211> 69

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
sequence

<400> 45

cggatgatca gtacattggt tggccaggtt ttagctgcaa ccaatgccaa gctgagtctt 60

cgcatccag

69

<210> 46

<211> 39

<212> DNA

<213> Saccharomyces cerevisiae

<220>

<221> CDS

<222> (1)..(39)

<400> 46

tgg cat tgg cta cag cta acg cct ggg caa cca atg tac
Trp His Trp Leu Gln Leu Thr Pro Gly Gln Pro Met Tyr
1 5 10

39

<210> 47

<211> 13

<212> PRT

<213> Saccharomyces cerevisiae

<400> 47

Trp His Trp Leu Gln Leu Thr Pro Gly Gln Pro Met Tyr
1 5 10

<210> 48

<211> 39
<212> DNA
<213> Saccharomyces cerevisiae

<220>
<221> CDS
<222> (1)..(39)

<400> 48
tgg cat tgg ctg gag ctt atg cct ggc caa cca tta tac
Trp His Trp Leu Glu Leu Met Pro Gly Gln Pro Leu Tyr
1 5 10

39

<210> 49
<211> 13
<212> PRT
<213> Saccharomyces cerevisiae

<400> 49
Trp His Trp Leu Glu Leu Met Pro Gly Gln Pro Leu Tyr
1 5 10

<210> 50
<211> 39
<212> DNA
<213> Saccharomyces cerevisiae

E!
cont.
<220>
<221> CDS
<222> (1)..(39)

<400> 50
tgg cat tgg atg gag cta aga cct ggc caa cca atg tac
Trp His Trp Met Glu Leu Arg Pro Gly Gln Pro Met Tyr
1 5 10

39

<210> 51
<211> 13
<212> PRT
<213> Saccharomyces cerevisiae

<400> 51
Trp His Trp Met Glu Leu Arg Pro Gly Gln Pro Met Tyr
1 5 10

<210> 52
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<221> CDS
<222> (1)..(33)

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 52
tat gct ctg ttt gtt cat ttt ttt gat att ccg
Tyr Ala Leu Phe Val His Phe Phe Asp Ile Pro
1 5 10

33

<210> 53
<211> 11
<212> PRT
<213> Artificial Sequence

<400> 53
Tyr Ala Leu Phe Val His Phe Phe Asp Ile Pro
1 5 10

<210> 54
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<221> CDS
<222> (1)..(33)

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

E1
cont
<400> 54
ttt aag ggt cag gtg cgt ttt gtg gtt ctt gct
Phe Lys Gly Gln Val Arg Phe Val Val Leu Ala
1 5 10

33

<210> 55
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 55
Phe Lys Gly Gln Val Arg Phe Val Val Leu Ala
1 5 10

<210> 56
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<221> CDS
<222> (1)..(33)

<220>
<223> Description of Artificial Sequence: Synthetic

sequence

<400> 56

ctt atg tct ccg tct ttt ttt ttt ttg cct gcg
Leu Met Ser Pro Ser Phe Phe Phe Leu Pro Ala
1 5 10

33

<210> 57

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
sequence

<400> 57

Leu Met Ser Pro Ser Phe Phe Phe Leu Pro Ala
1 5 10

<210> 58

<211> 27

<212> DNA

<213> Saccharomyces cerevisiae

<400> 58

cgggatccga tgcaattttc aacatgc

27

<210> 59

<211> 23

<212> DNA

<213> Saccharomyces cerevisiae

<400> 59

gctctagatg ctactgatcc cgc

23

<210> 60

<211> 18

<212> DNA

<213> Saccharomyces cerevisiae

<400> 60

cgccgcatga ctccattg

18

<210> 61

<211> 26

<212> DNA

<213> Saccharomyces cerevisiae

<400> 61

ggggtaccaa taggttcttt cttagg

26

<210> 62

<211> 35

<212> DNA

E1
cont.

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 62

ggtgggaggg tgctctctag aaggaagtgt tcacc

35

<210> 63

<211> 41

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 63

gcccaggaga ccagaccatg gactccttca attataccac c

41

<210> 64

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 64

ccccttaagc gtgaggcaga agctactctg caaaagaaga tc

42

<210> 65

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 65

gaagatcttc agcgccgag ttgcatgtc

29

<210> 66

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 66

gatatatataa ggtaggaaac catggggtgt acagtgag

38

E!
ent.

<210> 67
<211> 34
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 67
cgagcgctcg agggaacgta taattaaagt agtg 34

<210> 68
<211> 34
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 68
gcgcggtacc aagcttcaat tcgagataat accc 34

<210> 69
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 69
cccgaatcca ccaatttctt tacg 24

E1
cont.
<210> 70
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 70
gcggcgctcga cgcggccgcg taacagt 27

<210> 71
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 71
ctgctggagc tccgcctgct gctgctgggt gctggag 37

<210> 72
<211> 43
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 72

ctgctggtcg acgcggccgc gggggttcct tcttagaagc agc

43

<210> 73

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 73

gggctcgagc cttcttagag cagctcgtag

30

<210> 74

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 74

ctgctggagc tcaagttgct gctggtgggt gctgggg

37

<210> 75

<211> 44

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 75

ctgctggtcg acgcggccgc gccctcaga agaggccgcg gtcc

44

<210> 76

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic sequence

<400> 76

gggctcgagc ctcagaagag gccgcagtc

29

E'
cont.

<210> 77
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 77
ctgctggagc tcaagctgct gctactcggg gctggag 37

<210> 78
<211> 49
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 78
ctgctggtcg acgcggccgc cactaacatc catgcttctc aataaagtc 49

E!
ent.
<210> 79
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 79
gggctcgagc atgcttctca ataaagtcca c 31

<210> 80
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 80
gcatccatca ataattccag 19

<210> 81
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 81
gaaacaatgg atccacttct tac

23

<210> 82
<211> 66
<212> PRT
<213> Saccharomyces cerevisiae

<400> 82
Met Gly Cys Thr Val Ser Thr Gln Thr Ile Gly Asp Glu Ser Asp Pro
1 5 10 15
Phe Leu Gln Asn Lys Arg Ala Asn Asp Val Ile Glu Gln Ser Leu Gln
20 25 30
Leu Glu Lys Gln Arg Asp Lys Asn Glu Ile Lys Leu Leu Leu Leu Gly
35 40 45
Ala Gly Glu Ser Gly Lys Ser Thr Val Leu Lys Gln Leu Lys Leu Leu
50 55 60
His Gln
65

<210> 83
<211> 65
<212> PRT
<213> Saccharomyces cerevisiae

E1
cont.
<400> 83
Met Gly Cys Leu Gly Thr Ser Lys Thr Glu Asp Gln Arg Asn Glu Glu
1 5 10 15
Lys Ala Gln Arg Glu Ala Asn Lys Lys Ile Glu Lys Gln Leu Gln Lys
20 25 30
Asp Lys Gln Val Tyr Arg Ala Thr His Arg Leu Leu Leu Leu Gly Ala
35 40 45
Gly Glu Ser Gly Lys Ser Thr Ile Val Lys Gln Met Arg Ile Leu His
50 55 60
Val
65

<210> 84
<211> 58
<212> PRT
<213> Saccharomyces cerevisiae

<400> 84
Met Gly Cys Thr Val Ser Ala Glu Asp Lys Ala Ala Ala Glu Arg Ser
1 5 10 15
Lys Met Ile Asp Lys Asn Leu Arg Glu Asp Gly Glu Lys Ala Ala Arg
20 25 30

Glu Val Lys Leu Leu Leu Leu Gly Ala Gly Glu Ser Gly Lys Ser Thr
35 40 45

Ile Val Lys Gln Met Lys Ile Ile His Glu
50 55

<210> 85

<211> 58

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 85

Met Gly Cys Thr Val Ser Ala Glu Asp Lys Ala Ala Val Glu Arg Ser
1 5 10 15

Lys Met Ile Asp Arg Asn Leu Arg Glu Asp Gly Glu Lys Ala Ala Lys
20 25 30

Glu Val Lys Leu Leu Leu Leu Gly Ala Gly Glu Ser Gly Lys Ser Thr
35 40 45

Ile Val Lys Gln Met Lys Ile Ile His Glu
50 55

<210> 86

<211> 67

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 86

Met Ala Arg Ser Leu Thr Trp Arg Cys Cys Pro Trp Cys Leu Thr Glu
1 5 10 15

Asp Glu Lys Ala Ala Ala Arg Val Asp Gln Glu Ile Asn Arg Ile Leu
20 25 30

Leu Glu Gln Lys Lys Gln Asp Arg Gly Glu Leu Lys Leu Leu Leu
35 40 45

Gly Pro Gly Glu Ser Gly Lys Ser Thr Phe Ile Lys Gln Met Arg Ile
50 55 60

Ile His Gly
65

<210> 87

<211> 66

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
sequence

<400> 87

Met Gly Cys Thr Val Ser Thr Gln Thr Ile Gly Asp Glu Ser Asp Pro
1 5 10 15

21
cont.

Phe Leu Gln Asn Lys Arg Ala Asn Asp Val Ile Glu Gln Ser Leu Gln
20 25 30

Leu Glu Lys Gln Arg Asp Lys Asn Glu Arg Lys Leu Leu Leu Leu Gly
35 40 45

Ala Gly Glu Ser Gly Lys Ser Thr Ile Val Lys Gln Met Arg Ile Leu
50 55 60

His Val
65

<210> 88

<211> 66

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
sequence

<400> 88

Met Gly Cys Thr Val Ser Thr Gln Thr Ile Gly Asp Glu Ser Asp Pro
1 5 10 15

Phe Leu Gln Asn Lys Arg Ala Asn Asp Val Ile Glu Gln Ser Leu Gln
20 25 30

Leu Glu Lys Gln Arg Asp Lys Asn Glu Val Lys Leu Leu Leu Leu Gly
35 40 45

Ala Gly Glu Ser Gly Lys Ser Thr Ile Val Lys Gln Met Lys Ile Ile
50 55 60

His Glu
65

<210> 89

<211> 66

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
sequence

<400> 89

Met Gly Cys Thr Val Ser Thr Gln Thr Ile Gly Asp Glu Ser Asp Pro
1 5 10 15

Phe Leu Gln Asn Lys Arg Ala Asn Asp Val Ile Glu Gln Ser Leu Gln
20 25 30

Leu Glu Lys Gln Arg Asp Lys Asn Glu Val Lys Leu Leu Leu Leu Gly
35 40 45

Ala Gly Glu Ser Gly Lys Ser Thr Ile Val Lys Gln Met Lys Ile Ile
50 55 60

His Glu
65

<210> 90
<211> 66
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 90
Met Gly Cys Thr Val Ser Thr Gln Thr Ile Gly Asp Glu Ser Asp Pro
1 5 10 15
Phe Leu Gln Asn Lys Arg Ala Asn Asp Val Ile Glu Gln Ser Leu Gln
20 25 30
Leu Glu Lys Gln Arg Asp Lys Asn Glu Leu Lys Leu Leu Leu Leu Gly
35 40 45
Pro Gly Glu Ser Gly Lys Ser Thr Phe Ile Lys Gln Met Arg Ile Ile
50 55 60

His Gly
65

E!
cont.
<210> 91
<211> 39
<212> DNA
<213> Saccharomyces cerevisiae

<220>
<221> CDS
<222> (1)..(39)

<400> 91
tgg cat tgg ttg cag cta aaa cct ggc cag cct atg tac
Trp His Trp Leu Gln Leu Lys Pro Gly Gln Pro Met Tyr
1 5 10

39

<210> 92
<211> 13
<212> PRT
<213> Saccharomyces cerevisiae

<400> 92
Trp His Trp Leu Gln Leu Lys Pro Gly Gln Pro Met Tyr
1 5 10

<210> 93
<211> 39
<212> DNA
<213> Saccharomyces cerevisiae

<220>

<221> CDS
<222> (1)..(39)

<400> 93
tgg cat tgg ttg tcc ttg tgg ccc ggg cag cct atg tac
Trp His Trp Leu Ser Leu Ser Pro Gly Gln Pro Met Tyr
1 5 10

39

<210> 94
<211> 13
<212> PRT
<213> Saccharomyces cerevisiae

<400> 94
Trp His Trp Leu Ser Leu Ser Pro Gly Gln Pro Met Tyr
1 5 10

<210> 95
<211> 39
<212> DNA
<213> Saccharomyces cerevisiae

<220>
<221> CDS
<222> (1)..(39)

E!
cont.
<400> 95
tgg cat tgg ttg tcc ctg gac gct ggc cag cct atg tac
Trp His Trp Leu Ser Leu Asp Ala Gly Gln Pro Met Tyr
1 5 10

39

<210> 96
<211> 13
<212> PRT
<213> Saccharomyces cerevisiae

<400> 96
Trp His Trp Leu Ser Leu Asp Ala Gly Gln Pro Met Tyr
1 5 10

<210> 97
<211> 39
<212> DNA
<213> Saccharomyces cerevisiae

<220>
<221> CDS
<222> (1)..(39)

<400> 97
tgg cat tgg ttg acc ttg atg gcc ggg cag cct atg tac
Trp His Trp Leu Thr Leu Met Ala Gly Gln Pro Met Tyr
1 5 10

39

<210> 98
<211> 13

<210>	103
<211>	39
<212>	DNA

E'
cont.

<213> Saccharomyces cerevisiae

<220>

<221> CDS

<222> (1)..(39)

<400> 103

tgg cat tgg ttg cgc ttg tcc gcc ggg cag cct atg tac
Trp His Trp Leu Arg Leu Ser Ala Gly Gln Pro Met Tyr
1 5 10

39

<210> 104

<211> 13

<212> PRT

<213> Saccharomyces cerevisiae

<400> 104

Trp His Trp Leu Arg Leu Ser Ala Gly Gln Pro Met Tyr
1 5 10

<210> 105

<211> 39

<212> DNA

<213> Saccharomyces cerevisiae

<220>

<221> CDS

<222> (1)..(39)

<400> 105

tgg cat tgg ttg tcg ctc gtc ccg ggg cag cct atg tac
Trp His Trp Leu Ser Leu Val Pro Gly Gln Pro Met Tyr
1 5 10

39

<210> 106

<211> 13

<212> PRT

<213> Saccharomyces cerevisiae

<400> 106

Trp His Trp Leu Ser Leu Val Pro Gly Gln Pro Met Tyr
1 5 10

<210> 107

<211> 39

<212> DNA

<213> Saccharomyces cerevisiae

<220>

<221> CDS

<222> (1)..(39)

<400> 107

tgg cat tgg ttg tcc ctg tac ccc ggg cag cct atg tac
Trp His Trp Leu Ser Leu Tyr Pro Gly Gln Pro Met Tyr
1 5 10

39

el
cont.

<210> 108
 <211> 13
 <212> PRT
 <213> Saccharomyces cerevisiae

<400> 108
 Trp His Trp Leu Ser Leu Tyr Pro Gly Gln Pro Met Tyr
 1 5 10

<210> 109
 <211> 39
 <212> DNA
 <213> Saccharomyces cerevisiae

<220>
 <221> CDS
 <222> (1)..(39)

<400> 109
 tgg cat tgg ttg cgg ctg cag ccc ggg cag cct atg tac 39
 Trp His Trp Leu Arg Leu Gln Pro Gly Gln Pro Met Tyr
 1 5 10

<210> 110
 <211> 13
 <212> PRT
 <213> Saccharomyces cerevisiae

<400> 110
 Trp His Trp Leu Arg Leu Gln Pro Gly Gln Pro Met Tyr
 1 5 10

<210> 111
 <211> 62
 <212> PRT
 <213> Saccharomyces cerevisiae

<400> 111
 Arg Ile Asp Thr Thr Gly Ile Thr Glu Thr Glu Phe Asn Ile Gly Ser
 1 5 10 15

Ser Lys Phe Lys Val Leu Asp Ala Gly Gly Gln Arg Ser Glu Arg Lys
 20 25 30

Lys Trp Ile His Cys Phe Glu Gly Ile Thr Ala Val Leu Phe Val Leu
 35 40 45

Ala Met Ser Glu Tyr Asp Gln Met Leu Phe Glu Asp Glu Arg
 50 55 60

<210> 112
 <211> 62
 <212> PRT
 <213> Saccharomyces cerevisiae

<400> 112

E1
 cont.

Arg Val Leu Thr Ser Gly Ile Phe Glu Thr Lys Phe Gln Asn Asp Lys
 1 5 10 15
 Val Asn Phe His Met Phe Asp Val Gly Gly Gln Arg Asp Glu Arg Lys
 20 25 30
 Lys Trp Ile Gln Cys Phe Asn Asp Val Thr Ala Ile Ile Phe Val Val
 35 40 45
 Ala Ser Ser Ser Tyr Asn Met Val Ile Arg Glu Asp Asn Gln
 50 55 60

<210> 113
 <211> 62
 <212> PRT
 <213> Saccharomyces cerevisiae

<400> 113
 Arg Val Lys Thr Thr Gly Ile Val Glu Thr His Phe Thr Phe Lys Asp
 1 5 10 15
 Leu His Phe Lys Met Phe Asp Val Gly Gly Gln Arg Ser Glu Arg Lys
 20 25 30
 Lys Trp Ile His Cys Phe Glu Gly Val Thr Ala Ile Ile Phe Cys Val
 35 40 45
 Ala Leu Ser Ala Tyr Asp Leu Val Leu Ala Asp Glu Glu Met
 50 55 60

<210> 114
 <211> 62
 <212> PRT
 <213> Saccharomyces cerevisiae

<400> 114
 Arg Val Lys Thr Thr Gly Ile Val Glu Thr His Phe Thr Phe Lys Asp
 1 5 10 15
 Leu Tyr Phe Lys Met Phe Asp Val Gly Gly Gln Arg Ser Glu Arg Lys
 20 25 30
 Lys Trp Ile His Cys Phe Glu Gly Val Thr Ala Ile Ile Phe Cys Val
 35 40 45
 Ala Leu Ser Asp Tyr Asp Leu Val Leu Ala Glu Asp Glu Glu
 50 55 60

<210> 115
 <211> 62
 <212> PRT
 <213> Saccharomyces cerevisiae

<400> 115
 Arg Val Lys Thr Thr Gly Ile Val Glu Thr His Phe Thr Phe Lys Asn
 1 5 10 15
 Leu His Phe Arg Leu Phe Asp Val Gly Gly Gln Arg Ser Glu Arg Lys

20

25

30

Lys Trp Ile His Cys Phe Glu Asp Val Thr Ala Ile Ile Phe Cys Asn
35 40 45

Ala Leu Ser Gly Tyr Asp Gln Val Leu His Glu Asp Glu Thr
50 55 60

<210> 116

<211> 62

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 116

Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu Glu Asn
1 5 10 15

Ile Ile Phe Lys Met Val Asp Ala Gly Gly Gln Arg Ser Glu Arg Lys
20 25 30

Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Met Phe Leu Val
35 40 45

Ala Leu Ser Glu Tyr Asp Gln Cys Leu Glu Glu Asn Asn Gln
50 55 60

<210> 117

<211> 62

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 117

Arg Met Pro Thr Thr Gly Ile Asn Glu Tyr Cys Phe Ser Val Gln Lys
1 5 10 15

Thr Asn Leu Lys Ile Val Asp Ala Gly Gly Gln Arg Ser Glu Arg Lys
20 25 30

Lys Trp Ile His Cys Phe Glu Asn Ile Ile Ala Leu Ile Tyr Leu Ala
35 40 45

Ser Leu Ser Glu Tyr Asp Gln Val Leu Val Glu Ser Asp Asn
50 55 60

<210> 118

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> The 5'-end of this sequence is linked to the
3'-end of SEQ ID NO: 21 by (NNN) where n is any
chosen integer

<220>

<223> Description of Artificial Sequence: Synthetic
sequence

E'
cont.

<400> 118
agcttctgcc tcacgcttaa gtagc

25

<210> 119
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> The 5'-end of this sequence is linked to the
3'-end of SEQ ID NO: 25 by (NNN) where n is any
chosen integer

<220>
<223> Description of Artificial Sequence: Synthetic
sequence

<400> 119
gttgtccttc ttttactcg agtacc

26

<210> 120
<211> 9
<212> PRT
<213> Saccharomyces cerevisiae

<400> 120
Leu Leu Leu Leu Gly Ala Gly Glu Ser
1 5

<210> 121
<211> 9
<212> PRT
<213> Saccharomyces cerevisiae

<400> 121
Leu Glu Lys Gln Arg Asp Lys Asn Glu
1 5

<210> 122
<211> 6
<212> PRT
<213> Saccharomyces cerevisiae

<220>
<221> VARIANT
<222> 2,4,5
<223> Xaa may be any amino acid

<400> 122
Gly Xaa Gly Xaa Xaa Gly
1 5

<210> 123
<211> 10
<212> PRT
<213> Saccharomyces cerevisiae

81
cont.

<400> 123

Leu Leu Leu Leu Gly Ala Gly Glu Ser Gly
1 5 10

<210> 124

<211> 6

<212> PRT

<213> Saccharomyces cerevisiae

<220>

<221> VARIANT

<222> (3)...(6)

<223> Xaa may be any amino acid

<400> 124

Met Gly Xaa Xaa Xaa Ser
1 5

<210> 125

<211> 9

<212> PRT

<213> Saccharomyces cerevisiae

<400> 125

Gly Ser Gly Glu Ser Gly Asp Ser Thr
1 5

<210> 126

<211> 8

<212> PRT

<213> Saccharomyces cerevisiae

<400> 126

Gln Ala Arg Lys Leu Gly Ile Gln
1 5

<210> 127

<211> 9

<212> PRT

<213> Saccharomyces cerevisiae

<400> 127

Leu Ile His Glu Asp Ile Ala Lys Ala
1 5

<210> 128

<211> 7

<212> DNA

<213> Saccharomyces cerevisiae

<400> 128

tgaaaca

7

<210> 129

E!
cont.

<211> 10
<212> PRT
<213> Saccharomyces cerevisiae

<400> 129
Leu Leu Leu Leu Gly Ala Gly Glu Ser Gly
1 5 10

<210> 130
<211> 8
<212> PRT
<213> Saccharomyces cerevisiae

<400> 130
Leu Leu Leu Leu Gly Ala Gly Glu
1 5

<210> 131
<211> 6
<212> DNA
<213> Saccharomyces cerevisiae

<400> 131
gaggct 6

<210> 132
<211> 4
<212> DNA
<213> Saccharomyces cerevisiae

<400> 132
gaga 4

<210> 133
<211> 11
<212> PRT
<213> Saccharomyces cerevisiae

<400> 133
Tyr Ile Ile Lys Gly Val Phe Trp Asp Pro Ala
1 5 10

E'
corel.